

What is claimed is:

1 1. A layout check system that checks layout data that
2 defines a layout of a power source, a component that includes
3 a power pin, and a bypass capacitor on a printed wiring
4 board, comprising:

5 a storage unit operable to store the layout data, the
6 layout data including information used for calculating a
7 first value and a second value, the first value corresponding
8 to impedance between the power pin and the power source,
9 and the second value corresponding to impedance between
10 the power pin and the bypass capacitor;

11 a calculation unit operable to calculate the first
12 value and the second value, with use of the stored layout
13 data;

14 a judgment unit operable to judge, by comparing the
15 first value with the second value, whether the layout allows
16 the bypass capacitor to function effectively; and

17 an output unit operable to output error information
18 when a result of the judgment is negative.

1 2. The layout check system of Claim 1, wherein

2 the calculation unit calculates, with use of the layout
3 data, a shortest wiring distance between the power pin and

4 the power source as the first value, and a shortest wiring
5 distance between the power pin and the bypass capacitor
6 as the second value, and

7 the judgment unit judges that the layout does not allow
8 the bypass capacitor to function effectively if the first
9 value is less than the second value.

1 3. The layout check system of Claim 2, wherein

2 when a power via exists on wiring that connects the
3 power pin and the bypass capacitor, the calculation unit
4 calculates, with use of the layout data, a shortest wiring
5 distance between the power pin and the power via as the
6 first value, and the shortest wiring distance between the
7 power pin and the bypass capacitor as the second value.

1 4. The layout check system of Claim 1, wherein

2 the storage unit stores a threshold value, and
3 the judgment unit judges whether the layout allows
4 the bypass capacitor to function effectively, by comparing
5 the threshold value with a value that represents a ratio
6 of the first value to the second value.

1 5. The layout check system of Claim 1, wherein

2 the layout data includes type information that

3 indicates whether wiring is a line or a plane, and, for
4 wiring that is a plane, further includes area information
5 indicating a surface area of the plane,
6 the storage unit stores a prescribed value,
7 the layout check system further includes:
8 an analysis unit operable to analyze, with use
9 of the type information, whether wiring that connects
10 the power pin and the bypass capacitor is a line or
11 a plane; and
12 a power plane judgment unit operable to judge,
13 when a result of the analysis indicates that the wiring
14 that connects the power pin and the bypass capacitor
15 is a plane, whether the surface area of the plane is
16 less than the prescribed value, by referring to the
17 area information, and when the surface area is less
18 than the prescribed value, judge that the plane is
19 a specific power plane, and
20 when the power plane judgment unit judges the wiring
21 to be the specific power plane, the analysis unit further
22 analyzes, with use of the layout data, whether the specific
23 power plane and the power source are connected without a
24 bypass capacitor therebetween, and when a result of the
25 analysis indicates that the specific power plane and the
26 power source are connected without a bypass capacitor

27 therebetween, judge that the layout is not a layout that
28 allows a bypass capacitor to function effectively.

1 6. A layout check method for checking layout data that
2 defines a layout of a power source, a component that includes
3 a power pin, and a bypass capacitor on a printed wiring
4 board, comprising:

5 an obtaining step of obtaining layout data, the layout
6 data including information used for calculating a first
7 value and a second value, the first value corresponding
8 to impedance between the power pin and the power source,
9 and the second value corresponding to impedance between
10 the power pin and the bypass capacitor;

11 a calculation step of calculating the first value and
12 the second value, with use of the layout data;

13 a judgment step of judging, by comparing the first
14 value with the second value, whether the layout allows the
15 bypass capacitor to function effectively; and

16 an output step of outputting error information when
17 a result of the judgment is negative.

1 7. A program that has a computer execute layout check
2 processing for checking layout data that defines a layout
3 of a power source, a component that includes a power pin,

4 and a bypass capacitor on a printed wiring board, comprising:
5 an obtaining step of obtaining layout data, the layout
6 data including information used for calculating a first
7 value and a second value, the first value corresponding
8 to impedance between the power pin and the power source,
9 and the second value corresponding to impedance between
10 the power pin and the bypass capacitor;
11 a calculation step of calculating the first value and
12 the second value, with use of the layout data;
13 a judgment step of judging, by comparing the first
14 value with the second value, whether the layout allows the
15 bypass capacitor to function effectively; and
16 an output step of outputting error information when
17 a result of the judgment is negative.